(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 889 421 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
19.10.2005 Bulletin 2005/42

(51) Int Cl.7: **G06F 17/30**

(21) Application number: **98304651.7**

(22) Date of filing: **12.06.1998**

(54) Dynamic page generator

Dynamische Erstellung von Internetseiten

Génération dynamique de page web

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **12.06.1997 US 873975**

(43) Date of publication of application:
07.01.1999 Bulletin 1999/01

(73) Proprietor: **Yahoo, Inc.**
Santa Clara, California 95051 (US)

(72) Inventors:
- **Nazem, Farzad**
  Redwood City, California 94061 (US)
- **Patel, Ashvinkumar P.**
  Milpitas, California 95035 (US)

(74) Representative:
Cross, Rupert Edward Blount et al
BOULT WADE TENNANT,
Verulam Gardens
70 Gray's Inn Road
London WC1X 8BT (GB)

(56) References cited:
EP-A- 0 749 081 **WO-A-97/17662**

- **QUINTANA Y: "KNOWLEDGE-BASED INFORMATION FILTERING OF FINANCIAL INFORMATION" PROCEEDINGS OF THE NATIONAL ONLINE MEETING, 13 May 1997, pages 279-285, XP002057953**
- **CHESNAIS, P.R., MUCKLO, M.J., SHEENA, J.A.: "The Fishwrap personalized news system" PROCEEDINGS OF THE 2ND INTERNATIONAL WORKSHOP ON COMMUNITY NETWORKING INTEGRATED MULTIMEDIA SERVICES IN THE HOME, 20 - 22 June 1995, pages 275-282, XP002074902 Princeton, NJ, USA**

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 0 889 421 B1

Printed by Jouve, 75001 PARIS (FR)

Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to the field of customized information presentation. More specifically, one embodiment of the invention provides a custom page server which can quickly serve custom pages and is scalable to handle many users simultaneously.

[0002] Web servers for serving static documents ("Web pages") over the global Internet are known. While static documents are useful in many applications where the information to be presented to each requesting user is the same, some applications require customization to appeal to users. For example, in presenting news to users, custom pages present news which is more relevant to the requesting users than static pages. With static pages, a user will often have to scroll through many topics not of interest to that user to get to the information of interest. With custom pages, the information is filtered according to each user's interest.

[0003] Customizing a server response based on the requestor is known, however known systems do not scale well. One method of serving custom pages is to execute a script, such as a CGI (Common Gateway Interface) script, or other program to collect the information necessary to generate the custom page. For example, if the custom page is a news page containing stock quotes, sports scores and weather, the script might poll a quote server to obtain the quotes of interest, poll a sports score server to obtain the scores of interest and poll a weather server to obtain the weather. With this information, the server generates the custom page and returns it to the user. This approach is useful where there are not many requestors and where the attendant delay is acceptable to users. While it may be the case that current users are willing to wait while pages load in their browsers, growing impatience with waiting will turn users away from such servers, especially as use increases.

[0004] One approach to avoiding long waits is to transfer the custom information in non-real-time, so that the information is stored local to the user as it arrives and is presented to the user on request. A disadvantage of such a system is that the networks used by the user become clogged with data continually streaming to the user and require large amounts of local storage. Another disadvantage is that the locally stored information will become out of date as the server receives new data.

[0005] From the above it is seen that an improved system for delivering custom pages is needed.

[0006] Quintana Y., "Knowledge-based information filtering of financial information", Proceedings of the National Online Meeting, 13 May 1997, pages 279-285, XP002057953 discloses an information management system that indexes information on a server and creates personalized summaries of new information for individual users. The system keeps track of previously viewed information and creates a personalized summary of new information for the user based on the previously viewed information. The personalized summaries may then be emailed or stored on a WWW server for the user. The information is stored on a WWW server.

[0007] EP-A-0 749 081 discloses a client computer that initiates a connection to an information server and sends a portion of its user profile to an application server. The application server then determines what information needs to be downloaded to the client computer, collects the information, and sends the information to the client computer. The information is then loaded into the client computer's local database. The information is sent for storage in the client's local database.

[0008] WO 97 17662 A discloses retrieving pages from a cache when a request is received.

[0009] Chesnais, P.R. et al., "The fishwrap personalised news system", proceedings of the 2nd International Workshop on community networking integrated multimedia services in the home, 20-22 June 1995, pages 275-282, XP002074902, Princeton, N.J., USA discloses a personalized news system. That system maintains a list of interests that the user might be interested in and uses those interests to filter news for a user. The system also can generate a page for a user including the filtered news and users can specify sections of news that appear in their page.

SUMMARY OF THE INVENTION

[0010] The present invention provides a method of using a page server as set out in claim 1.

[0011] User preferences are organized into templates stored in compact data structures and the live data used to fill the templates is stored local to the page server which is handing user requests for custom pages. One process is executed on the page server for every request. The process is provided a user template for the user making the request, where the user template is retrieved from a cache of recently used user templates. Each user process is provided access to a large region of shared memory which contains all of the live data needed to fill any user template. Typically, the pages served are news pages, giving the user a custom selection of stock quotes, news headlines, sports scores, weather, and the like. With the live data stored in a local, shared memory, any custom page can be built within the page server, eliminating the need to make requests from other servers for portions of the live data. While the shared memory might include RAM (random access memory) and disk storage, in many computer systems, it is faster to store all the live data in RAM.

[0012] If the volume of requests becomes too great for one page server to handle, the system is easily scaled by adding additional page servers. Each page server maintains its own copy of the live data in its shared memory, and needs to maintain only the user templates for the requests it is handling, so no commu-

nication between page servers is needed.

[0013] Examples of embodiments of the inventions herein may be realized by reference to the remaining portions of the specification and the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014]

FIG. 1 is a block diagram of a client-server architecture according to one embodiment of the present invention;

FIG. 2 is a schematic diagram showing how a user's custom page is generated from a user configuration, a global template and live data.

FIG. 3 is an illustration of a global front page template as might be used to generate user templates.

FIG. 4 is an illustration of a user template generated from the global front page template of FIG. 3 as might be used to generate a custom user page.

FIG. 5 is an illustration of a user page generated using the global template of FIG. 4.

FIG. 6 is an illustration of how intelligent defaults are selected.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0015] FIG. 1 shows a client-server system 100 which is used to display custom news pages. A custom news page is displayed on a browser 102 which obtains the page from a page server 104 via Internet 106. While only one browser 102 is shown, a typical system will have many browsers connecting and disconnecting to the system.

[0016] The art of client-server systems using HTTP (HyperText Transport Protocol) messaging or other protocols is well known and will not be addressed in detail here. Essentially, browser 102 makes a request for a particular page by specifying a Uniform Resource Locator ("URL") for the page. In the example shown in FIG. 1, the request is directed to the URL "http:/my.yahoo.com/". Normally, this URL is directed to the root directory of a machine named my.yahoo.com. As is the convention in Internet communications, browser 102 submits the domain portion ("my.yahoo.com") of the URL to a name server, such as name server 108, to determine an actual address for the page server 104. Name server 108 returns an IP (Internet Protocol) address to browser 102 directing it to a page server 104. Where multiple page servers 104 are used, name server 108 returns IP addresses in a round-robin fashion to distribute the load over multiple page servers. Alternatively, name server 108 might distribute the load more deterministic by tracking browser addresses and hashing the browser address to select a page server 104. It is deterministic in that any given browser always accesses the same page server 104. This allows for more efficient caching of user templates, since more cache hits are likely where a given browser always returns to one page server.

[0017] When a page server receives the URL for its root directory, it interprets that as a request for the user's custom summary page. The user is determined not from the URL, but from a "cookie" provided by browser 102 with the URL. Cookies are strings of data stored by browsers and sent along with any request to a URL having a domain associated with the cookie.

[0018] Page servers 104 obtain the live data from many disparate sources and reformat the data into a form suitable for use by the page server. Page servers 104 are coupled, via a network, to edit servers 112, which are used when a user changes his or her user template. The user templates are stored in a user configuration database 116 and are stored and provided to edit servers by a network appliance 114 written for this purpose. Network appliance 114 is a process tuned to quickly locate files in large directories (N400 files/directory) and return them to the edit servers or page servers. One embodiment of network appliance 114 is the F330 fault-tolerant scalable server supplied by Network Appliance, of Mountain View, California.

[0019] In a specific embodiment, page servers 104 are microcomputers running the Unix® operating system with 64 to 128 megabytes of shared memory, page servers 104 and edit servers 112 are coupled using TCP/IP (Transport Control Protocol/Internet Protocol) and the user configuration database 116 is a Unix file structure which stores each user configuration in a text file. The particular file used by a user is a combination of the user's user name and a hash result, to allow for quick access when many user configurations are stored. For example, the user configuration for summary "front" page for a user "ash802" might be stored at /de/13/y.ash802, where "de" and "13" are hash results of a hash of the user name "ash802".

[0020] FIG. 2 shows in more detail the generation of a custom page for a user, using a front page generator 200 and page server 104. Front page generator 200 generates a user template 202 from a global front page template 204 and a user configuration record 206. FIG. 3 shows an example of a global front page template. User configuration record 206 is a record selected from user configuration database 116. The record might have been obtained from a cache, but in the preferred embodiment, the records are not cached, the user templates are.

[0021] Page server 104 is shown comprising a page generator 210, a shared memory 212 for storing live data and a cache 214 for caching user templates such as user template 202. Page generator 210 generates a custom front page 218 from a user template and the live data stored in shared memory 212. Although not shown, custom pages other than the front page can be generated in a similar fashion. Using user templates and a shared memory for the live data, page server 104 can quickly build custom pages in response to a user re-

quest. Where the user template is cached, the page can be generated entirely within page server 104.

[0022] Shared memory 212 is organized as a set of memory mapped files. With memory mapped files, the operating system maintains the data in permanent storage, but permanently caches the files in shared memory 212. This allows for quick recovery should a page server crash, since all of the shared memory can simply be reloaded from the permanent storage. This is a great feature from a user convenience standpoint, since the user will never be faced with a situation where they have to wait for a server to rebuild a page for them by querying the various data providing servers, such as sports server 230, stock server 232 and news server 234. As should be apparent from this description and FIG. 2, page generator 210 can generate custom front page 218 much more quickly using shared memory 212 as compared with using servers 230, 232, 234 and page template 202. One reason for this is that the time it takes to retrieve data from shared memory 212 does not appreciably increase relative to the bandwidth delay time when more data is retrieved. For example, if stock server 232 were queried for each individual stock quote, a page with fifty stock quotes might take ten times as long to generate as a page with five stock quotes.

[0023] One aspect of the present invention is the realization that every piece of information a person can request on a page is storable in a shared memory closely coupled to a page generator. For example, page server 104 shown in FIG. 2 can accommodate 65,000 different symbols for which quotes are provided. In one embodiment, all of the stock information for all 65,000 symbols is stored in a 13 to 14 megabytes section of the shared memory. Where shared memory 212 is a 64MB or 128MB memory, this leaves sufficient room for other data, such as news headlines, sport scores, and memory used by the operating system for each process running on page server 104. In some embodiments, shared memory 212 is large enough to also accommodate more than just news headlines. For example, news summaries (as described further in connection with FIG. 5) can be stored in shared memory 212 for quick access.

[0024] As shown in FIG. 2, the user's front page template 202 does not need to be generated each time, but rather is stored in cache 214. In a preferred embodiment, user templates are stored in cache 214 for long enough to be reused. Some users might choose to access their front page only infrequently, while others might choose to access their front page hourly. Since the pages are customized and dynamic, the user would see different information each time, but the same user template would be used each time. Of course, when the user edits his or her template, any cached copy of a user template is flushed. A garbage-collection process may also flush the cache of user pages which have been inactive for several days. In one implementation, cache 214 would accommodate 60,000 to 70,000 user templates. Where a particular page server is assigned on a random round robin basis, multiple page servers may cache their own copy of a given user template, but where a user is directed always to a particular server (except in the case where the particular server fails and a secondary server is used), that page server will be the only one which needs to cache that users user template. Even where the round robin name server scheme is used, some browsers may cache IP addresses, even longer than the specified "time to live" variable associated with the IP address, in order to save the time required to obtain an IP address each time. With such a browser, the user is effectively directed to the same page server each time and the server side of the page serving system does not need to direct users to particular page servers. With newer browsers, however, the "time to live" variable is honored and new requests are made for IP addresses after the "time to live" has expired. In these cases, if the assignment of a user to a single page server is desired, name server 108 (see FIG. 1) will use the user name from the provided cookie or the user's IP address to assign a page server based on a hash of the user name or IP address.

[0025] FIG. 3 is an illustration of global user template 204. Global user template 204 is an HTML (HyperText Markup Language) document with additional tags as placeholders for live data. Several placeholders 302 are shown in FIG. 3.

[0026] FIG. 4 is an illustration of user template 202 as might be generated from global user template 204 (see Fig. 3) and a user configuration record 206.

[0027] User template 202 is determined by the user configuration and is independent of the live data, therefore it can be cached without needing to be updated, unless the user chooses to edit the configuration information. The user templates are cached rather than the user configuration, to save a step and reduce the time to respond to a request for the page. Caching is more effective where the typical user makes several requests in a short time span and then doesn't make any requests for a long period of time.

[0028] Essentially, user template 202 contains the information about the user which does not change until the user changes his or her preferences. Of course, the system operator could choose to make changes to how the system operates, thus requiring changes to the user preferences and user templates. User template 202 is shown comprising internal variables such as a time zone and demographic information. The demographic information, on the second line in FIG. 4 is used for selection of an advertisement which will be part of the custom page. In this example, the advertisement is targeted by the demographic information in the user template ":M, 85,95035,T,*" indicating that a suitable ad should be targeted to a male user, age 85, located in zip code 95035, etc. As shown, the portfolio section contains selected stock symbols, the scoreboard section contains selected team symbols, and the weather section contains selected weather cities/zip codes.

[0029] The selections of stock quote symbols, team scores, and weather cities are set by the user. In a preferred embodiment, intelligent defaults are selected by the system prior to user selection, so that users unfamiliar with the customization process will nonetheless be able to view non empty custom pages. This is described in further detail below in connection with FIG. 6.

[0030] FIG. 5 is an illustration of a user front page 218 returned by page server 104. User front page 218 as shown in FIG. 5 includes many elements, some of which are described here in further detail. User front page 218 is built according to a user template and live data. The user template specifies, for example which quotes are shown in the portfolio module, which cities are displayed in the weather module, etc. Each of the modules 504 can be customized by a user and moved about front page 218. The modules 504 are also reusable, in that any customized module which appears on multiple pages can be edited from any one of those pages and the edits will be reflected on each of the pages. Other custom pages for the user can be viewed by selecting one of the page buttons 502 appearing below the header. Other pages and utilities can be selected using the buttons 508 which are part of the header.

[0031] In addition to all of the live date shown in FIG. 5 being stored in the shared memory, summaries from each of the major news topics can also be stored in the shared memory and viewed by pressing on the news topic header, such as news topic header 506. As should be noted, the page generator can also intelligently display dates 510 customized for a particular user, using a time zone variable in the user template. This time zone variable is shown as the first line in user template 202 in FIG. 4. In addition to being able to modify each of the modules, in many cases the order of appearance of the modules is customizable. For example, the order of the various sections of user template 202 shown in FIG. 4 is not fixed.

[0032] The preference editing process can be initiated by the user pressing the appropriate edit button 512. As explained above, once the editing process is complete, the user template is flushed from the cache and regenerated. Since each of the news stories is essentially a static page linked to a headline shown in the news section, these can simply be linked to static pages on a news server.

[0033] Referring now to FIG. 6, an illustration of intelligent defaulting for populating a user template, and consequently a user summary page. As part of a registration process, a user indicates, among other things, his or her zip code. This zip code is used to locate an approximate longitude and latitude for the user using a zip code lookup table 602. This allows the user's location to be located on a map 604. Map 604 provides city boundaries and, with team location table 606, also provides locations for various sports teams which can be selected in a sports module. In selecting a default predetermined number of cities and sports teams for inclusion as initial selections for a particular user, a circle is drawn around the user and increased in diameter until the circle envelopes a suitable predetermined number of cities and sports teams. In this way, each user is guaranteed a default number of nearby teams and cities for sports and weather, respectively. While this assumes that the user is interested in only the teams nearest the user, the system can be arranged to provide intelligent defaults where geographic anomalies are known to exist. Geographic anomalies occur in communities which have more loyalty to distant teams than nearby teams, such as might occur when the distant team is much better than the nearby team or when the nearby team recently moved to a distant location. In any case, the user is allowed customize his or her pages beginning with the intelligent defaults selected.

[0034] Other intelligent defaults can be provided in other contexts. For example, the header of user front page 218 includes a button 508 labelled "myweb" which, when pressed, would lead the user to a custom listing of web sites. The initial defaults for that custom listing of web sites might be generated based on the keywords of interest to that user or based on the news topics, sports teams or weather cities selected by the user.

Claims

1. A method of using a page server (104) to provide quick responses to user requests from a plurality of users for customized pages, the method comprising the steps of:

   obtaining user preferences for the plurality of users, wherein a user's user preferences indicate items of interest to that user;
   obtaining live information from information sources;
   storing the live information in a storage device;

   characterised in that the method further comprises the steps of:

   for each of the plurality of users, combining the user preferences for a specific user and a template (204) to form a template specific to the user (202) at the page server (104);
   storing the template specific to the user (202) in a cache (214);
   receiving, from a user and at the server (104), a user request for a customized page (218) customized according to the user preferences;
   generating the customized page at the page server (104) using the template specific to the user and using the live information stored in the storage device as input to the template; and
   providing the user with the customized page, wherein the steps of generating and providing

are performed in quick response to receipt of the user request in the step of receiving and wherein the customized page (218) includes at least one item of live information selected from the storage device.

2. The method of claim 1, wherein the live information comprises stock quotes, sports scores and news headlines.

3. The method of claim 1, wherein the step of storing the live information in a storage device is a step of storing the live information in a memory having a capacity to simultaneously contain all of the live information that is required for generating the customised page.

4. The method of claim 1, wherein the server (104) simultaneously handles more than one thousand user requests by assigning user requests to one of the plurality of servers.

5. The method of claim 1, further comprising a step of caching templates for users for whom user requests have been recently serviced.

6. The method of claim 1, further comprising a step of generating a default user configuration for a user based on demographic information of that user.

7. The method of claim 6, wherein the step of generating a default user configuration comprises the steps of:

determining a default list of cities for a weather report based on user demographic information; and
determining one or more sports teams for sports reporting based on user demographic information.

8. The method of claim 7, wherein the steps of determining comprise the steps of:

obtaining user postal code information;
translating the postal code information to user geographic position;
comparing the user geographic position to geographic positions assigned to each city and sports team; and
determining a threshold distance from the user geographic position which is greater than or equal to a distance to a predetermined nonzero number of cities and a predetermined nonzero number of sports team geographic positions.

Patentansprüche

1. Verfahren der Verwendung eines Seiten-Servers (104), um schnelle Antworten auf Benutzeranfragen von mehreren Benutzern für kundenspezifische Seiten bereitzustellen, wobei das Verfahren die Schritte umfasst:

Erhalten von Benutzerpräferenzen für die mehreren Benutzer, wobei eine Benutzerpräferenz eines Benutzers Elemente angibt, die für diesen Benutzer von Interesse sind;
Erhalten unverzögerter Informationen von Informationsquellen;
Speichern der unverzögerten Informationen in einer Speichervorrichtung;

dadurch gekennzeichnet, dass das Verfahren ferner die Schritte umfasst:

für jeden der mehreren Benutzer das Kombinieren der Benutzerpräferenzen für einen spezifischen Benutzer und einer Vorlage (204), um am Seiten-Server (104) eine für den Benutzer (202) spezifische Vorlage zu bilden;
Speichern der für den Benutzer (202) spezifischen Vorlage in einem Pufferspeicher (214);
Empfangen einer Benutzeranfrage von einem Benutzer für eine kundenspezifische Seite (218), die gemäß den Benutzerpräferenzen kundenspezifisch gestaltet ist, am Server (104);
Erzeugen der kundenspezifischen Seite am Seiten-Server (104) unter Verwendung der für den Benutzer spezifischen Vorlage und unter Verwendung der unverzögerten Informationen, die in der Speichervorrichtung gespeichert sind, als Eingabe in die Vorlage; und
Bereitstellung der kundenspezifischen Seite für den Benutzer, wobei die Schritte der Erzeugung und der Bereitstellung in einer schnellen Antwort auf den Empfang der Benutzeranfrage im Schritt des Empfangens durchgeführt werden, wobei die kundenspezifische Seite (218) wenigstens ein Element an unverzögerten Informationen enthält, das aus der Speichervorrichtung ausgewählt worden ist.

2. Verfahren nach Anspruch 1, bei dem die unverzögerten Informationen Aktienkurse, Sportergebnisse und Nachrichtenschlagzeilen umfassen.

3. Verfahren nach Anspruch 1, bei dem der Schritt des Speicherns der unverzögerten Informationen in einer Speichervorrichtung ein Schritt des Speicherns der unverzögerten Informationen in einem Speicher ist, dessen Kapazität dafür ausgelegt ist, gleichzeitig alle unverzögerten Informationen zu halten, die

für die Erzeugung der kundenspezifischen Seite erforderlich sind.

4. Verfahren nach Anspruch 1, bei dem der Server (104) gleichzeitig mehr als eintausend Benutzeranfragen behandelt, indem er Benutzeranfragen einem von mehreren Servern zuweist.

5. Verfahren nach Anspruch 1, das ferner einen Schritt der Zwischenspeicherung von Vorlagen für Benutzer umfasst, für die Benutzeranfragen vor kurzem bedient worden sind.

6. Verfahren nach Anspruch 1, das ferner einen Schritt der Erzeugung einer Vorgabe-Benutzerkonfiguration für einen Benutzer auf der Grundlage von demographischen Informationen über diesen Benutzer umfasst.

7. Verfahren nach Anspruch 6, bei dem der Schritt der Erzeugung einer Vorgabe-Benutzerkonfiguration die Schritte umfasst:

Bestimmen einer Vorgabeliste von Städten für einen Wetterbericht auf der Grundlage demographischer Benutzerinformationen; und
Bestimmen einer oder mehrerer Sportmannschaften für die Sportberichterstattung auf der Grundlage demographischer Benutzerinformationen.

8. Verfahren nach Anspruch 7, bei dem die Schritte des Bestimmens die Schritte umfassen:

Erhalten von Benutzer-Postleitzahlinformationen;
Übersetzen der Postleitzahleninformationen in die geographische Benutzerposition;
Vergleichen der geographischen Benutzerposition mit geographischen Positionen, die jeweils einer Stadt und einer Sportmannschaft zugeordnet sind; und
Bestimmen eines Schwellenabstandes von der geographischen Benutzerposition, die größer oder gleich einem Abstand zu einer vorgegebenen Anzahl ungleich 0 von Städten und einer vorgegebenen Anzahl ungleich 0 von geographischen Positionen von Sportmannschaften ist.

Revendications

1. Procédé d'utilisation d'un serveur de pages (104) pour fournir des réponses rapides à des demandes d'utilisateurs émanant d'une pluralité d'utilisateurs pour des pages personnalisées, le procédé comprenant les étapes consistant à :

obtenir des préférences d'utilisateurs pour la pluralité d'utilisateurs, les préférences d'utilisateurs d'un utilisateur indiquant des éléments d'intérêt pour cet utilisateur ;
obtenir des informations en direct depuis des sources d'informations ;
stocker les informations en direct sur un dispositif de stockage ;

caractérisé en ce que le procédé comprend en outre les étapes consistant à :

pour chacun de la pluralité d'utilisateurs, combiner les préférences d'utilisateurs pour un utilisateur spécifique et un modèle (204) pour former un modèle spécifique à l'utilisateur (202) sur le serveur de pages (104) ;
stocker le modèle spécifique à l'utilisateur (202) dans une antémémoire (214) ;
recevoir, d'un utilisateur et sur le serveur (104), une demande d'utilisateur pour une page personnalisée (218) ayant été personnalisée conformément aux préférences de l'utilisateur ;
générer la page personnalisée sur le serveur de pages (104) en utilisant le modèle spécifique à l'utilisateur et en utilisant les informations en direct stockées sur le dispositif de stockage en tant qu'entrée du modèle ; et
fournir à l'utilisateur la page personnalisée, les étapes de génération et de fourniture étant effectuées en réponse rapide à la réception de la demande de l'utilisateur lors de l'étape de réception, et la page personnalisée (218) comportant au moins un élément d'information en direct sélectionné sur le dispositif de stockage.

2. Procédé selon la revendication 1, dans lequel les informations en direct comprennent des cours de bourse, des résultats sportifs et des gros titres de journaux.

3. Procédé selon la revendication 1, dans lequel l'étape de stockage des informations en direct sur un dispositif de stockage est une étape consistant à stocker des informations en direct dans une mémoire ayant une capacité permettant de contenir simultanément toutes les informations en direct qui sont exigées pour générer la page personnalisée.

4. Procédé selon la revendication 1, dans lequel le serveur (104) traite simultanément plus d'un millier de demandes d'utilisateurs en affectant des demandes d'utilisateurs à l'un de la pluralité de serveurs.

5. Procédé selon la revendication 1, comprenant en outre une étape consistant à mettre en antémémoire des modèles pour des utilisateurs pour lesquels des demandes d'utilisateurs ont été récemment

traitées.

6. Procédé selon la revendication 1, comprenant en outre une étape consistant à générer une configuration d'utilisateur par défaut pour un utilisateur sur la base d'une information démographique de cet utilisateur.

7. Procédé selon la revendication 6, dans lequel l'étape de génération d'une configuration d'utilisateur par défaut comprend les étapes consistant à :

déterminer une liste par défaut de villes pour un bulletin météorologique sur la base d'une information démographique de l'utilisateur ; et
déterminer une ou plusieurs équipes sportives pour des bulletins sportifs sur la base d'une information démographique de l'utilisateur.

8. Procédé selon la revendication 7, dans lequel les étapes de détermination comprennent les étapes consistant à :

obtenir une information de code postal de l'utilisateur ;
traduire l'information de code postal en position géographique de l'utilisateur ;
comparer la position géographique de l'utilisateur à des positions géographiques affectées à chaque ville et à chaque équipe sportive ; et
déterminer une distance seuil par rapport à la position géographique de l'utilisateur qui est supérieure ou égale à une distance par rapport à un nombre non nul prédéterminé de villes et par rapport à un nombre non nul prédéterminé de positions géographiques d'équipes sportives.

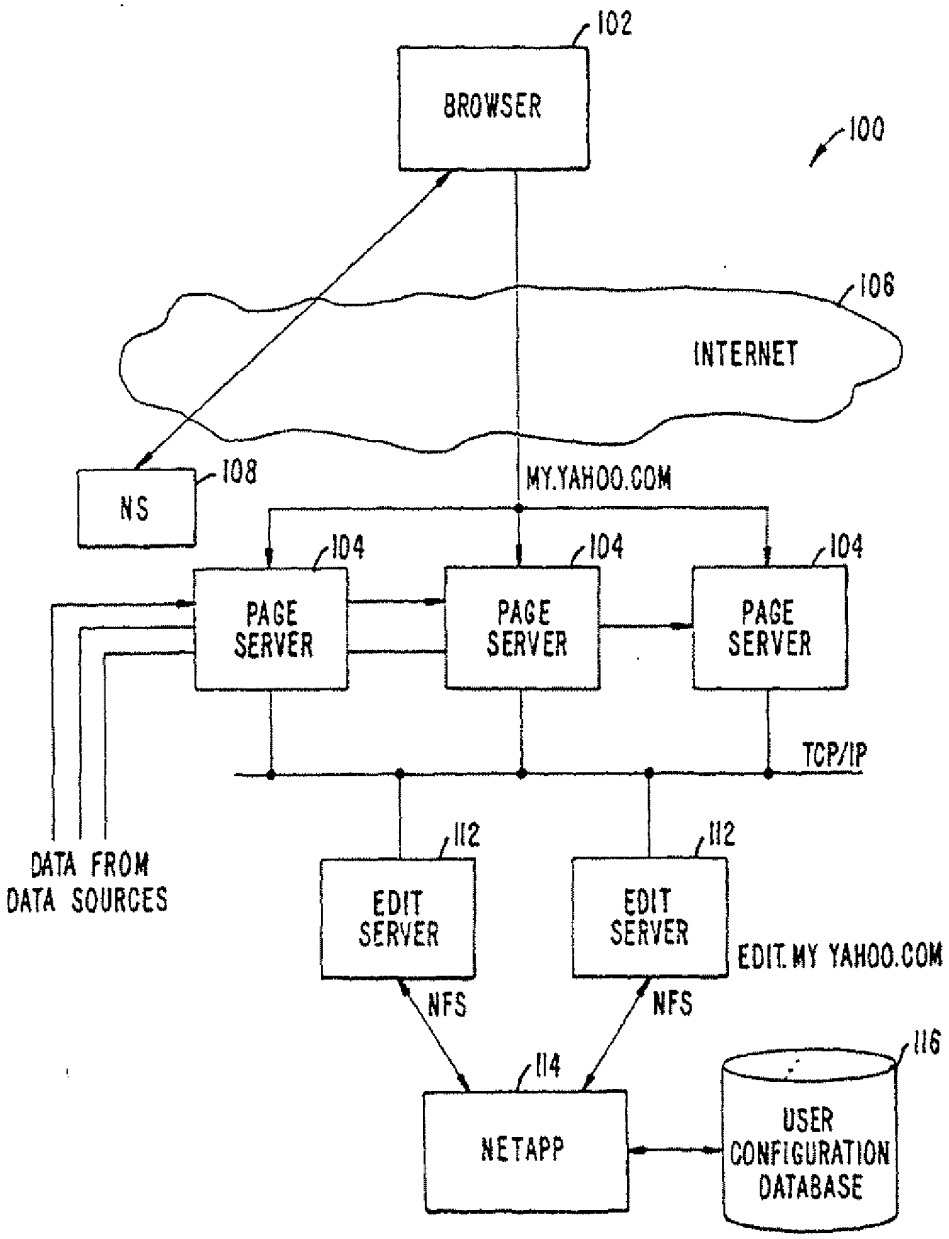
102
BROWSER
100
106
INTERNET
NS
108
MY.YAHOO.COM
104
104
104
PAGE SERVER
PAGE SERVER
PAGE SERVER
TCP/IP
DATA FROM DATA SOURCES
112
112
EDIT SERVER
EDIT SERVER
EDIT.MY YAHOO.COM
NFS
NFS
114
116
NETAPP
USER CONFIGURATION DATABASE

FIG. 1.

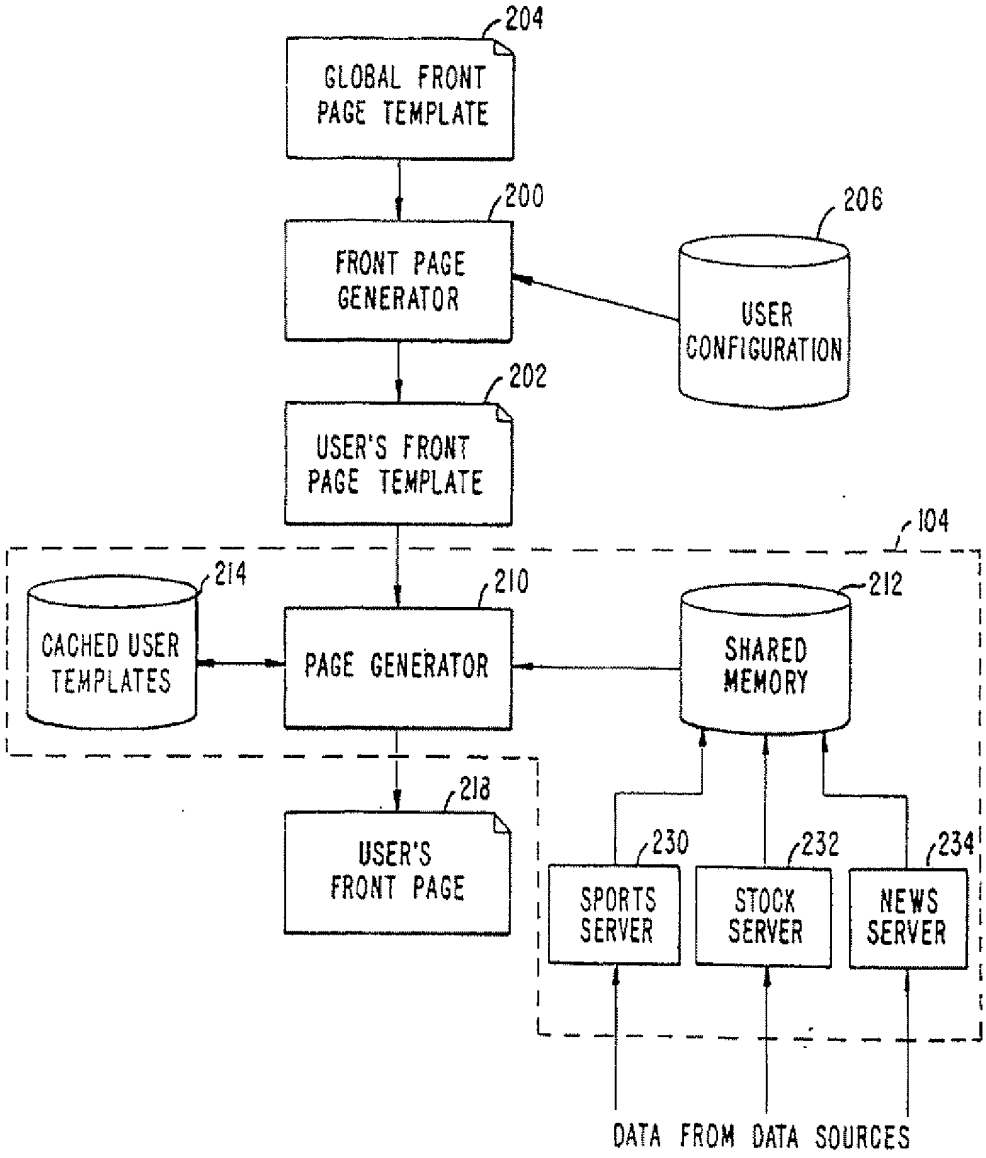
204
GLOBAL FRONT PAGE TEMPLATE
200
FRONT PAGE GENERATOR
206
USER CONFIGURATION
202
USER'S FRONT PAGE TEMPLATE
104
214
CACHED USER TEMPLATES
210
PAGE GENERATOR
212
SHARED MEMORY
218
USER'S FRONT PAGE
230
SPORTS SERVER
232
STOCK SERVER
234
NEWS SERVER
DATA FROM DATA SOURCES

FIG. 2.

```
<html>
<head>
<title>My Yahoo! news summary for <!-- login --></title>
</head>
<body>

<center>
<!--banner:sum -->

<!-- ad -->
<!-- nav bar -->  302
</center>

<table border=1 cellpadding=4 cellspacing=0 width=100%">
<tr><td align=center valign=top width="1%">
<!-- leftside:nsum -->  302

<p></td>
<td align=center valign=top width="100%">
<!-- mode bar:"FRONT PAGE" -->
<!-- channel:nsum -->  302

</td></tr>
</table>

<center>
<table border=1 cellpadding=2 cellspacing=0 width=100%">
<!-- motd:motn.html -->
</table>
</center>
<!-- search -->

<!-- copyright:sum -->

</body>
</html>
```

204

FIG. 3.

202

```
<!-- timezone:-8,PT 0 -->
<!-- ad:M,85,95035,T,* 792 -->
<!-- portfolio:Quotes,pf_1,1,^DJI,^NYA,^IXIC,^SPX,^XAX,YHOO,NSCP,IOM,NSCP,YHOO
2836 -->
<!--
scoreboard:NCAAFSSC,NHLSAN,MLSSAN,NCAAFSSS,ALOAK,NBAGSW,NFLOAK,NCAAFCCD,NFLSFO
,NLSFO 3803 -->
<!-- weather:f,30901,uk_londo,94601,95101 4368 -->
<!--
mode_bar:"FRONT_PAGE",.hier=News+Summary%3aEdit&.done=http://my.yahoo.com/news
/summary2:3,rt,rw,z0000,mlb,re,vf 4597 -->
<!-- motd:us_motn.html 4696 -->
<html>
<head>
<title>My Yahoo! news summary for ash802</title>
</head>
<body>

...

</body>
</html>
```

404

FIG. 4.

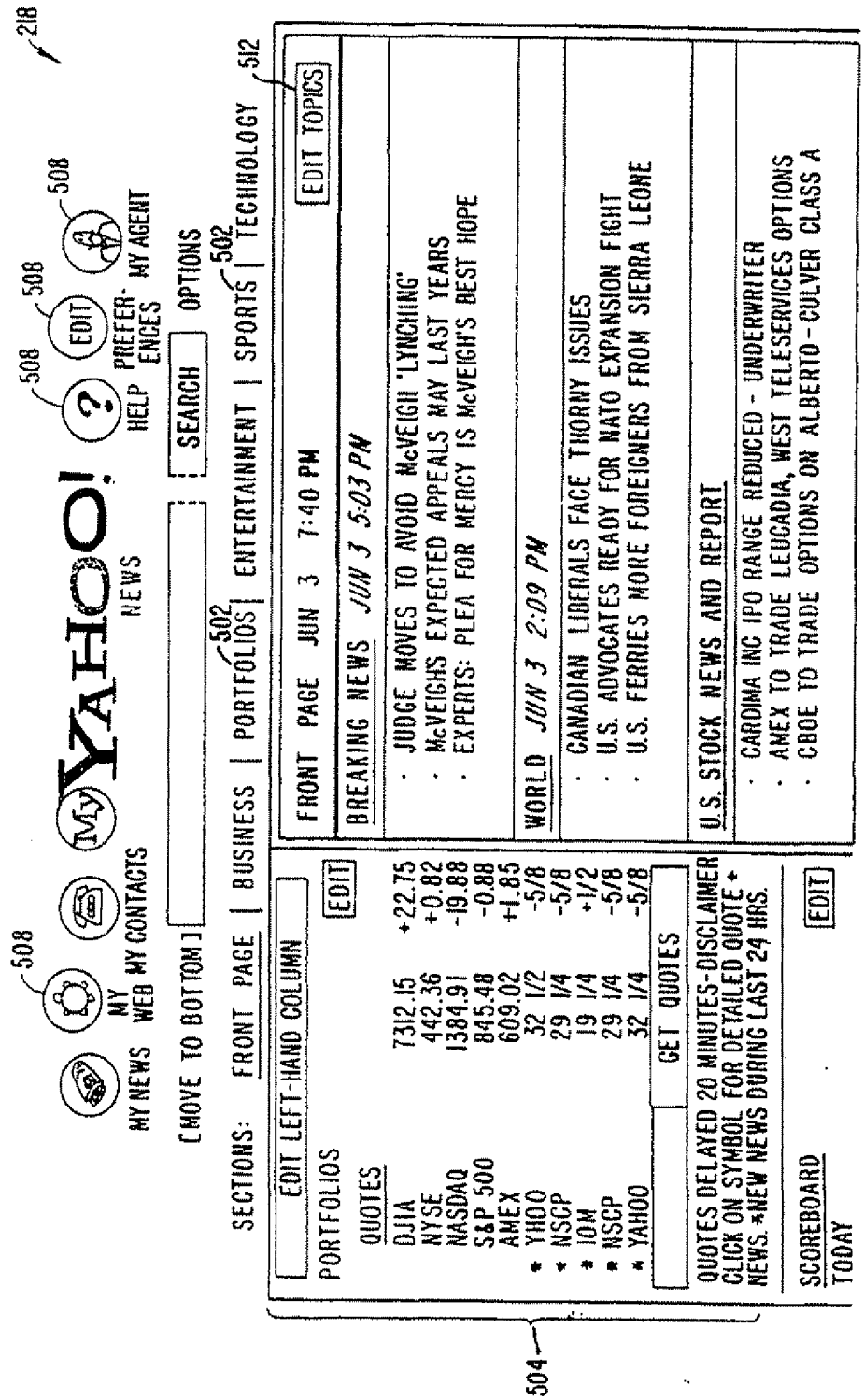
218
508
MY NEWS
MY WEB
MY CONTACTS
MyYAHOO!
NEWS
HELP
PREFERENCES
EDIT
MY AGENT
[MOVE TO BOTTOM]
SEARCH
OPTIONS
SECTIONS: FRONT PAGE | BUSINESS | PORTFOLIOS | ENTERTAINMENT | SPORTS | TECHNOLOGY
502
512
504
EDIT LEFT-HAND COLUMN
PORTFOLIOS
EDIT
QUOTES
DJIA 7312.15 +22.75
NYSE 442.36 +0.82
NASDAQ 1384.91 -19.88
S&P 500 845.48 -0.88
AMEX 609.02 +1.85
* YHOO 32 1/2 -5/8
* NSCP 29 1/4 -5/8
* IOM 19 1/4 +1/2
* NSCP 29 1/4 -5/8
* YAHOO 32 1/4 -5/8
GET QUOTES
QUOTES DELAYED 20 MINUTES-DISCLAIMER
CLICK ON SYMBOL FOR DETAILED QUOTE+
NEWS. *NEW NEWS DURING LAST 24 HRS.
SCOREBOARD
TODAY
EDIT
FRONT PAGE JUN 3 7:40 PM
EDIT TOPICS
BREAKING NEWS JUN 3 5:03 PM
· JUDGE MOVES TO AVOID McVEIGH 'LYNCHING'
· McVEIGHS EXPECTED APPEALS MAY LAST YEARS
· EXPERTS: PLEA FOR MERCY IS McVEIGH'S BEST HOPE
WORLD JUN 3 2:09 PM
· CANADIAN LIBERALS FACE THORNY ISSUES
· U.S. ADVOCATES READY FOR NATO EXPANSION FIGHT
· U.S. FERRIES MORE FOREIGNERS FROM SIERRA LEONE
U.S. STOCK NEWS AND REPORT
· CARDIMA INC IPO RANGE REDUCED - UNDERWRITER
· AMEX TO TRADE LEUCADIA, WEST TELESERVICES OPTIONS
· CBOE TO TRADE OPTIONS ON ALBERTO-CULVER CLASS A

FIG. 5A.

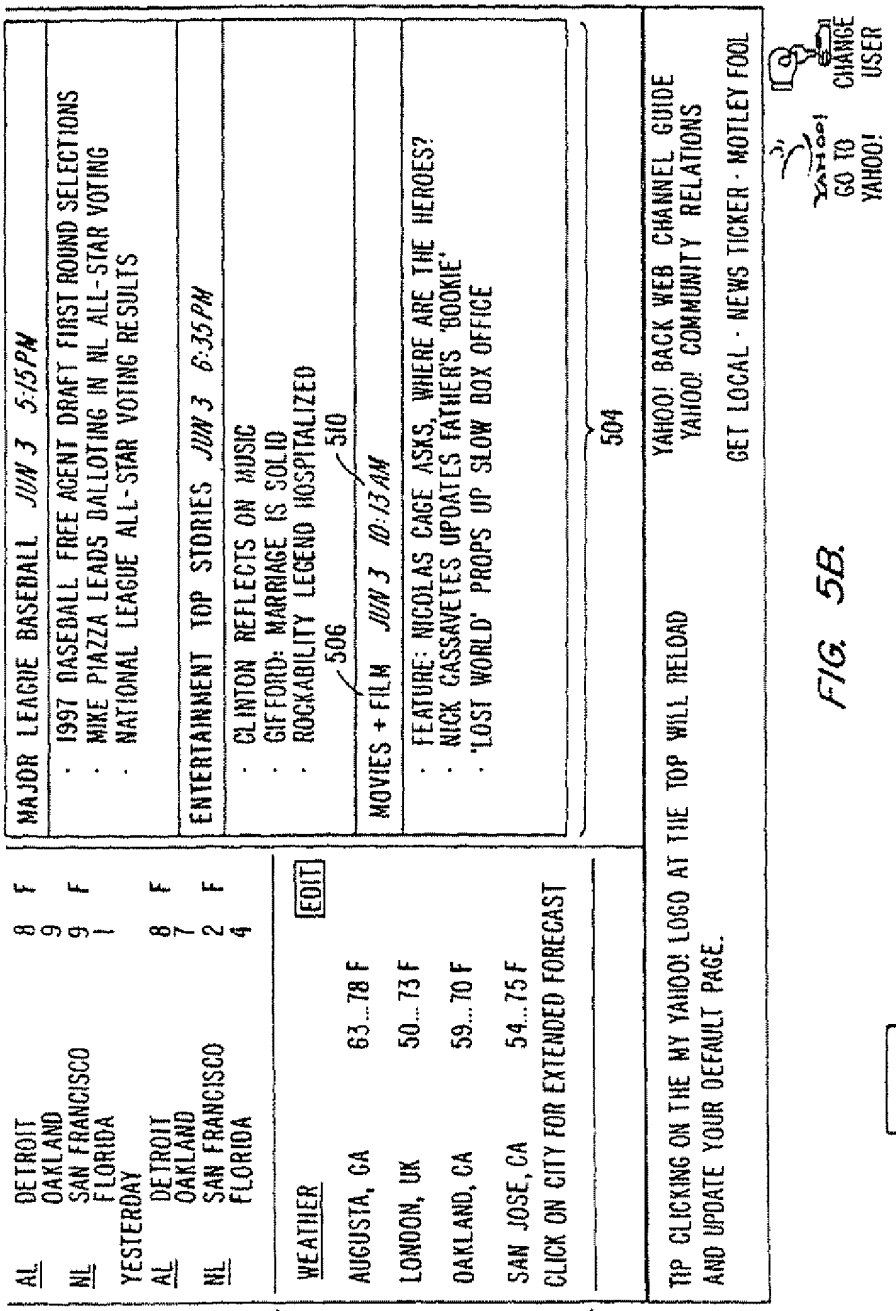

FIG. 5B.

FIG. 5. FIG. 5A. FIG. 5B.

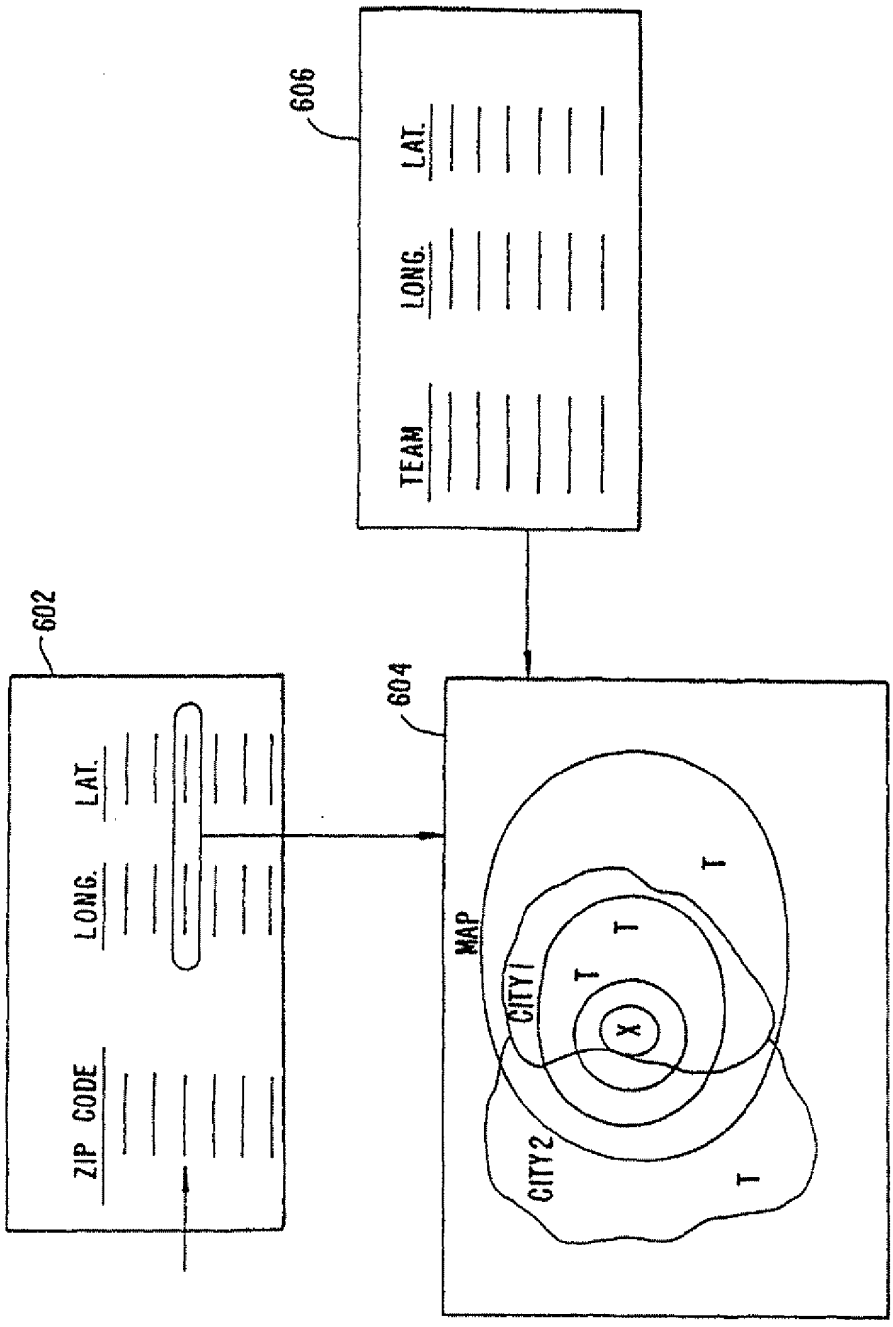

FIG. 6.